

Presentation to
Community of Whati
Independent Environmental
Monitoring Agency

September 19, 2012



General Presentation

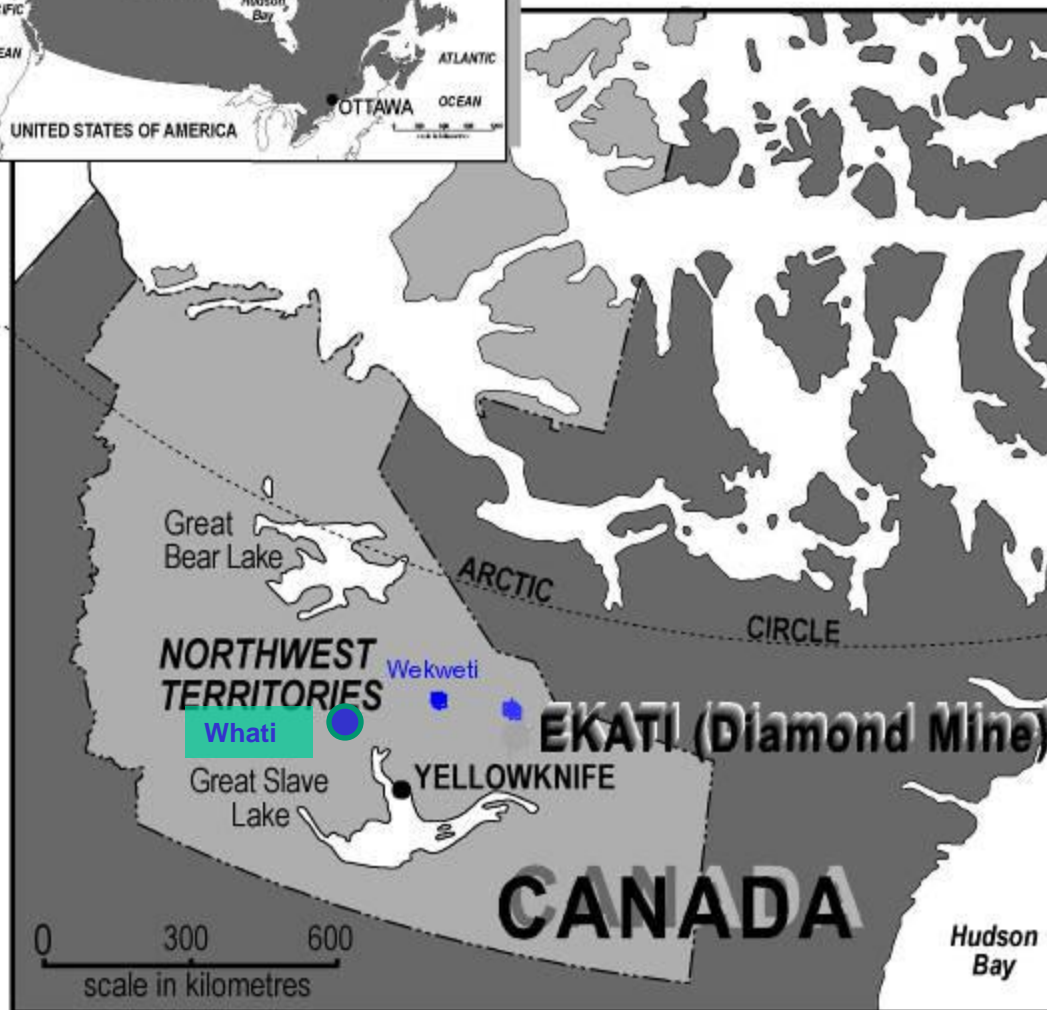
- Who we are
- About the Ekati mine

Monitoring Programs

- Wildlife
- Water
- Air

Planning for Mine Closure

- Update at Ekati



About the Agency

- Public watchdog for environmental management at Ekati (not the company, we are independent)
- Seven member Board:
 - Tlicho, Akaitcho, North Slave Metis, Kitikmeot Inuit Association, BHP Billiton, GNWT, Canada



Agency Board Members and Staff

The Agency Mandate

- Review and make recommendations on Ekati environmental programs, reports and plans from the company and government
- Make recommendations on using TK in environmental plans and programs
- Participate at public hearings on the mine



Wek'eezhii Land and Water Board Public Hearing June 2009

Mandate (continued...)

- Bring concerns of Aboriginal Peoples to governments and BHP Billiton
- Distribute information to our members and the public



What do we do?

Provide information to the Aboriginal Peoples
affected by the project



Workshops and meetings held by the Agency
on environmental monitoring and mine closure.

What do we do?



Prepare an annual report with more information about the environment at Ekati

We make a plain language version as well



What do we do?



Site Meeting to Discuss the Environmental Impact Report 2009

We meet with the company and government regulators to help them do a better job

About Ekati

- Diamonds found in 1989
- Official opening in 1998
- Currently there are 3 pits being mined (above and below ground mining) and one pit is being pushed back, another pit is now used to store minewater and processed kimberlite (beginning later this year)

View from Underground looking into a pit



Fox Lake – water drainage and early construction in 2003



Fox Pit – One Year Later in 2004



Fox Pit – August 2009



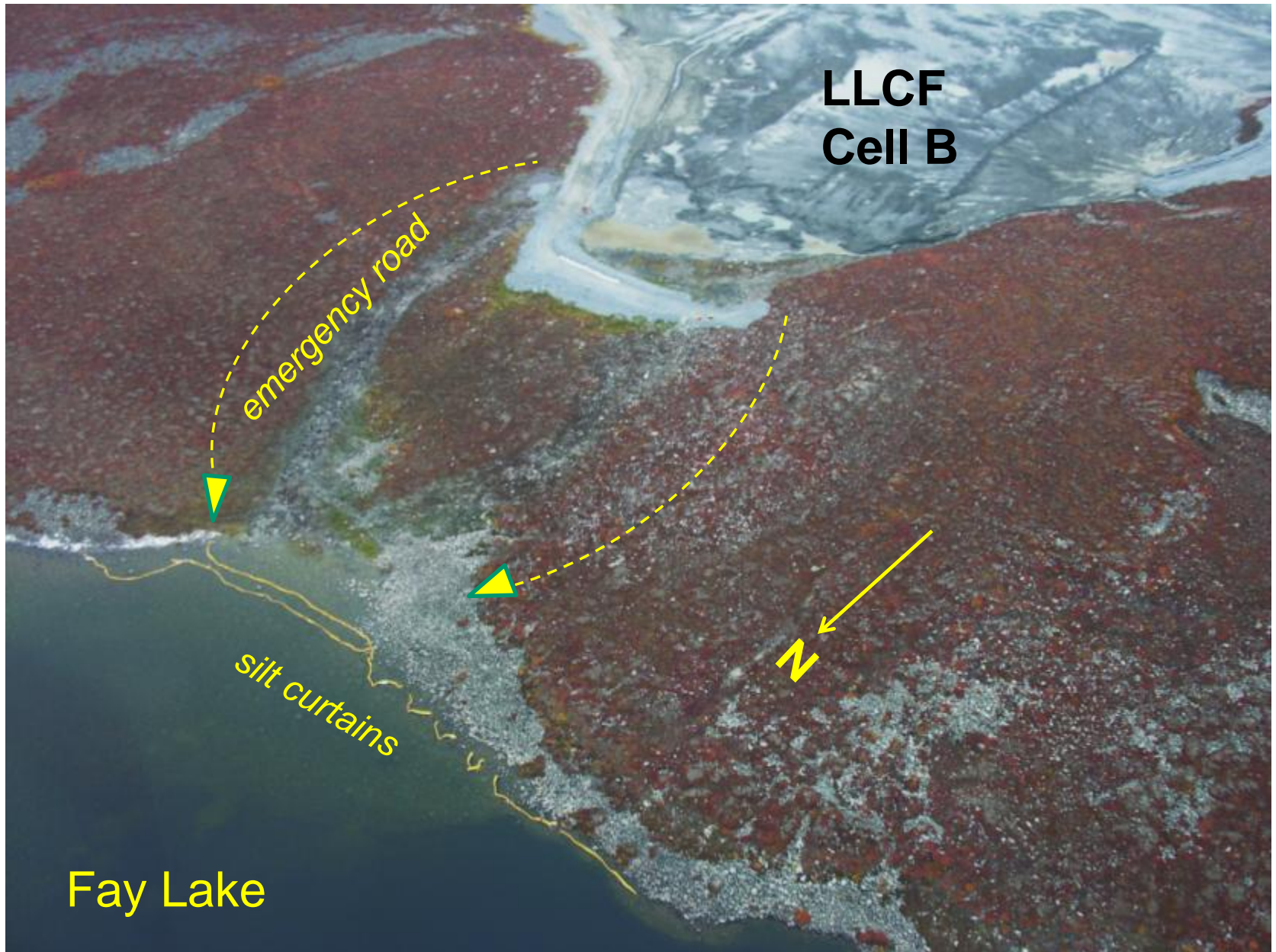
About Ekati – the Misery Waste Rock Pile



Misery camp and fuel storage

Fay Lake Spill

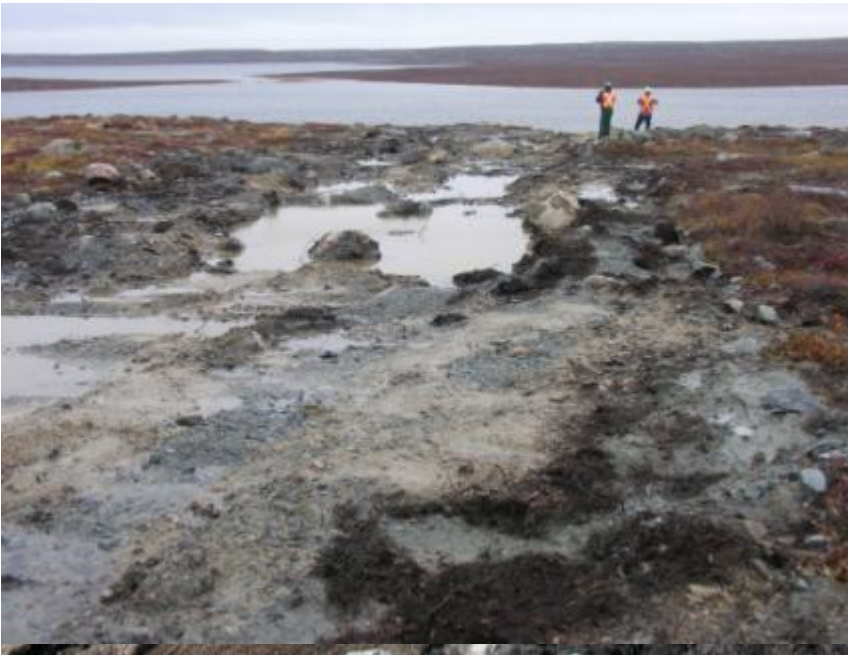
- Overflow of 4.5 million litres of processed kimberlite from north end of Cell B happened in mid-May 2008
- Discovered by company employee
- Inspected by government, no charges laid
- Company notified Aboriginal government leaders and Agency soon after spill, site visits offered
- Exact cause unknown, ice dam during spring runoff suspected
- Company did a good job cleaning up the spill and has now put in place preventative measures



September 2008

Fay Lake Spill

- Good progress on cleaning up Fay Lake spill
- Monitoring and revegetation of spill area being done



Fay Lake Spill area in September 2008

Fay Lake spill area in June 2012



Fay Lake Spill

- Liner and berm built at north end of Cell B to help prevent further spills



Wildlife Monitoring at Ekati



Caribou



Grizzly bear



Wolverine

Wildlife Monitoring Programs at Ekati

BHPB monitors the following:

- Vehicle and Aircraft Collisions – **rare; 8 in 2011**
- Habitat losses from mine development – **30 km²**
- Landfill and waste management problems, to reduce attractiveness to wildlife – **fewer wolverine problems**
- Wildlife deaths and accidents at the mine – **7 in 2011 (new airport fence)**
- Number of animals around the site during specific time periods



Caribou Monitoring

BHPB monitors the caribou to better understand effects on caribou:

- Monitoring focuses on the area around the mine, diamond mines working together more closely on monitoring
- Aboriginal peoples have told us the Bathurst Caribou herd has declined and so have government scientists
- Monitoring at Ekati shows that caribou tend to avoid the area around the mine but we do not know the cause
- More work is needed to determine if dust and the plants causes caribou to avoid the area around the mine



New Caribou Fence Around Airport



New plastic fencing around airport installed in summer of 2010 to replace wire electric fence.

Wolverine problems at Ekati have declined



Photo: Dean Cluff (ENR)

Some wolverine were killed, others live-trapped and sent away from the mine. Company has closed spaces under buildings. Management of garbage is good at the mine.

Changes to Wildlife Monitoring at Ekati

- Diamond Mines started to review their wildlife monitoring programs together in December 2008
- Technical and Communities workshops in June and October 2010
- Wildlife related monitoring for 2012
 - grizzly bear monitoring—regional hair snagging program
 - aerial surveys for caribou around BHPB and Diavik started again
 - behavioural scans of caribou to be improved
 - wolverine inventory April 2011 limited by low snow levels
 - no bird monitoring—only raptors in pits
 - BHPB has started to use cameras along roads
 - rely on GNWT for wolf and raptor surveys
- Agency continues to push for better caribou monitoring
- Need for proper and regular wildlife monitoring program review that looks at monitoring questions and program design

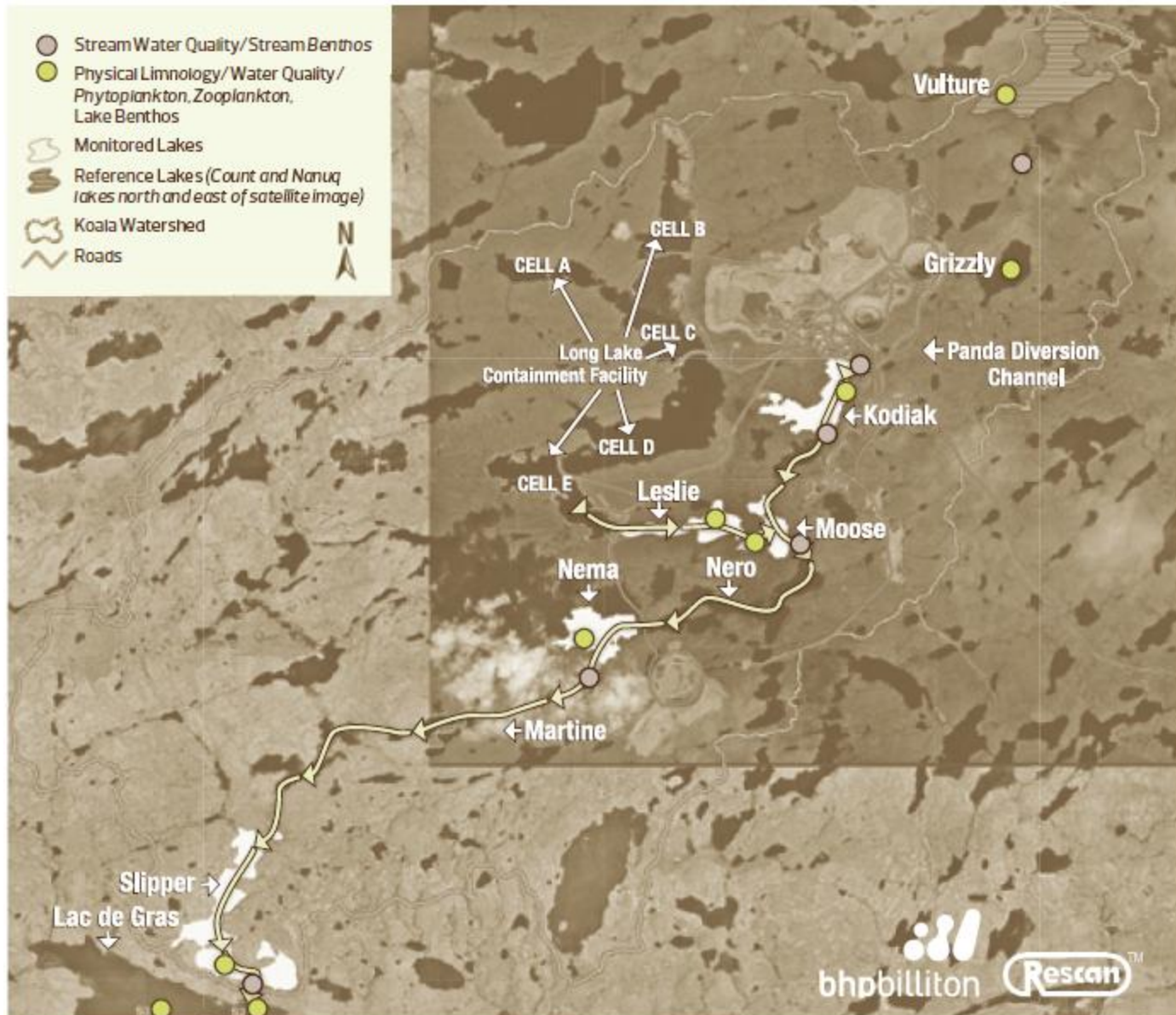
Water and Fish

- Water is looked at every year in summer and winter
- Fish testing every six years for lake trout - there are not enough trout in the lakes around Ekati to sample them every year but BHPB has started to sample other fish every year (sculpin)
- Small changes have occurred in the water close to the mine, and some very small changes found in Lac de Gras



Water and Fish

FIGURE 1: AEMP REFERENCE LAKES AND OUTFLOW STREAMS



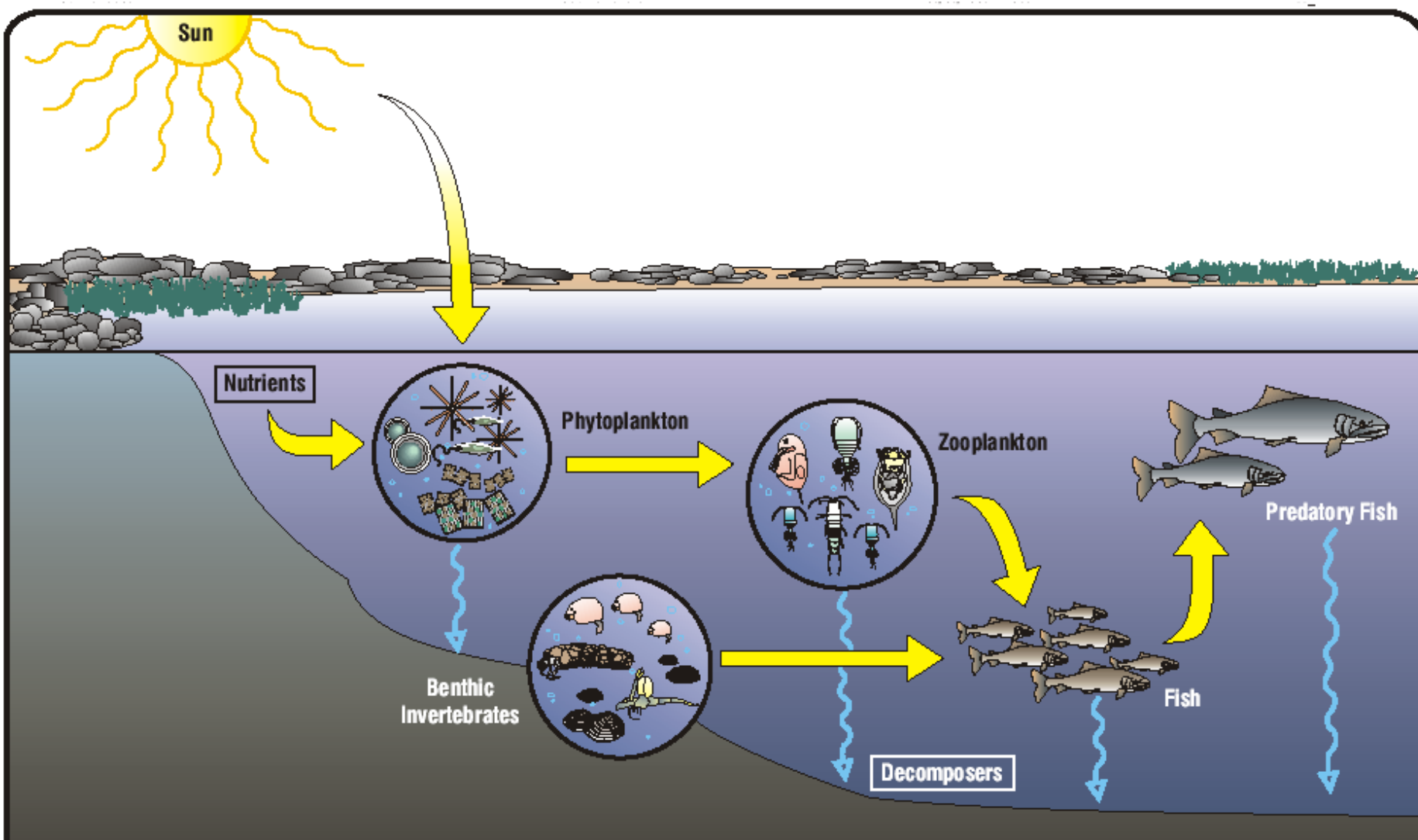


TABLE 4: MINING EFFECTS ON WATER QUALITY FLOWING THROUGH THE KOALA AND KING-CUJO WATERSHEDS

Parameters Monitored	Parameters elevated in Koala watershed								Parameters elevated in King-Cujo watershed			
	Long Lake Containment Facility Lac de Gras								King Pond Lac du Sauvage			
	Leslie	Moose	Moose-Nero	Nema	Nema-Martine	Slipper	Slipper-Lac de Gras	Lac de Gras	Cujo	Cujo Outflow	Christine-Lac du Sauvage	Lac du Sauvage
pH	■	■	■	■	■	■	■	■	■	■	■	●
Alkalinity	■	■	■	■	■	■	■	■	■	■	■	
Total Dissolved Solids	■	■	■	■	■	■	■	■	■	■	■	
Chloride	■ ●	■ ●	■	■	■	■	■	■	■	■	■	
Sulphate	■	■	■	■	■	■	■	■	■	■	■	
Potassium	■	■	■	■	■	■	■	■	■	■	■	
Total Ammonia	■	■	■	■								
Nitrite	■	■	■	■								
Nitrate	■ ●	■ ●		■	■							
Total Phosphate	●	●		●		●			●			●
Total Organic Carbon									■	■		
Aluminum												●
Antimony	■	■	■	■	■	■	■					
Arsenic	■	■										
Chromium						●						
Copper				●	●	●	●	●	●	●	●	●
Iron									■			
Molybdenum	●	●	■	■	■	■	■	■	■	■		
Nickel	■	■	■	■	■	■						
Strontium	■	■	■	■	■	■	■	■	■	■	■	
Uranium	■	■	■	■	■				■	■		

Downstream Effects of Ekati

detectable changes to water downstream of Ekati into Lac de Gras, some changes downstream are above levels of concern (nitrate, molybdenum and selenium)

- Renewal of water licence has started and may result in some changes

Effects downstream of Ekati

Zooplankton – tiny bugs that live in water that are food for fish



- Number and kind of zooplankton found in lakes downstream of Ekati are changing, but fish seem to be healthy
- BHPB doing research on possible exposure of fish to oil products directly downstream
- Need for a plan to manage downstream changes to water and fish

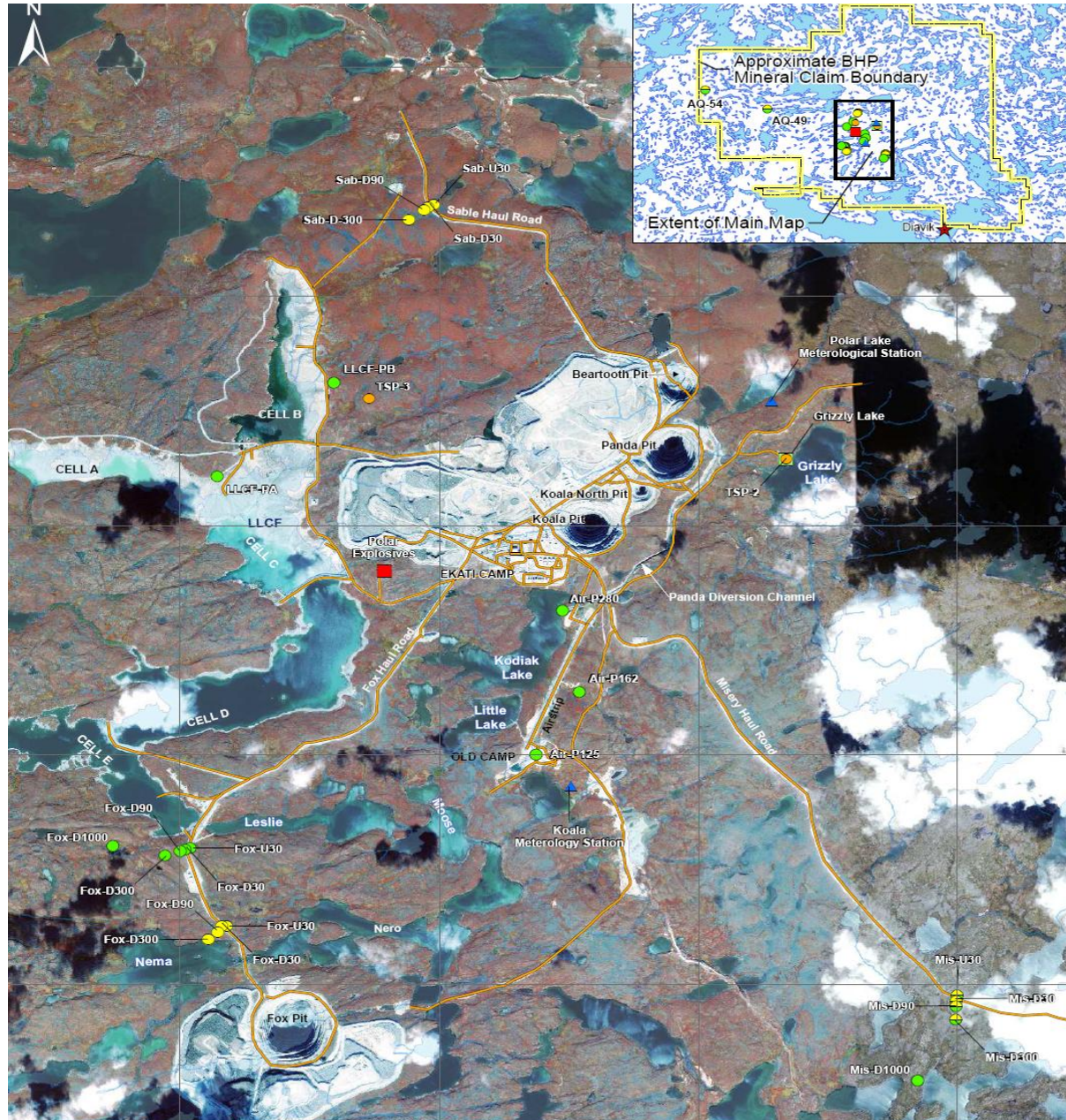
Air Quality Monitoring at Ekati

- Air quality was a concern during the review of the mine, largely related to dust
- Air quality monitoring is required under the Environmental Agreement
- Air quality monitoring began in 1998, and is reported every three years
 - reports submitted in 2002, 2005, 2008 and 2011

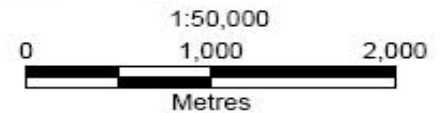
Air Quality Monitoring at Ekati

- air emissions and Greenhouse gases are calculated each year
- continuous air quality monitoring conducted
- high volume air sampling carried out each year
- snow and lichen sampling (done every 3 years)
- dust sampling done along haul roads

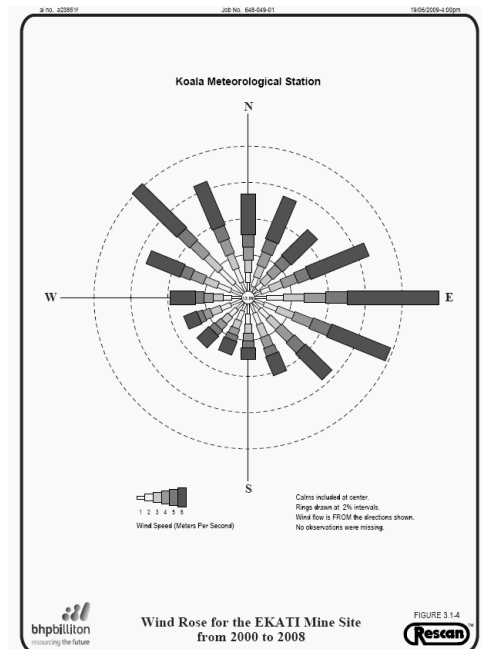
Air Quality Monitoring at Ekati



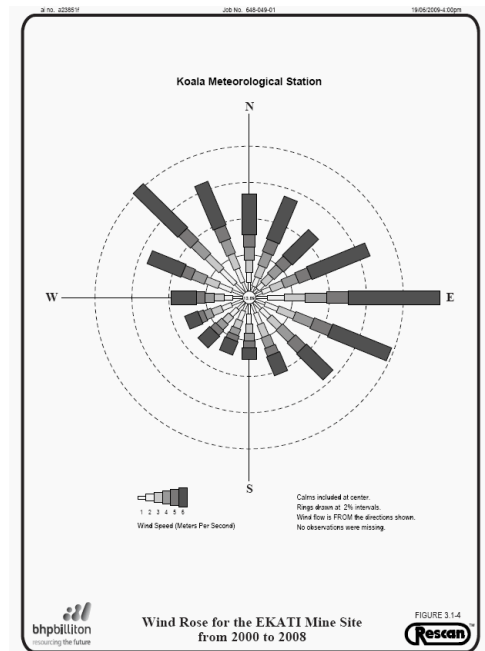
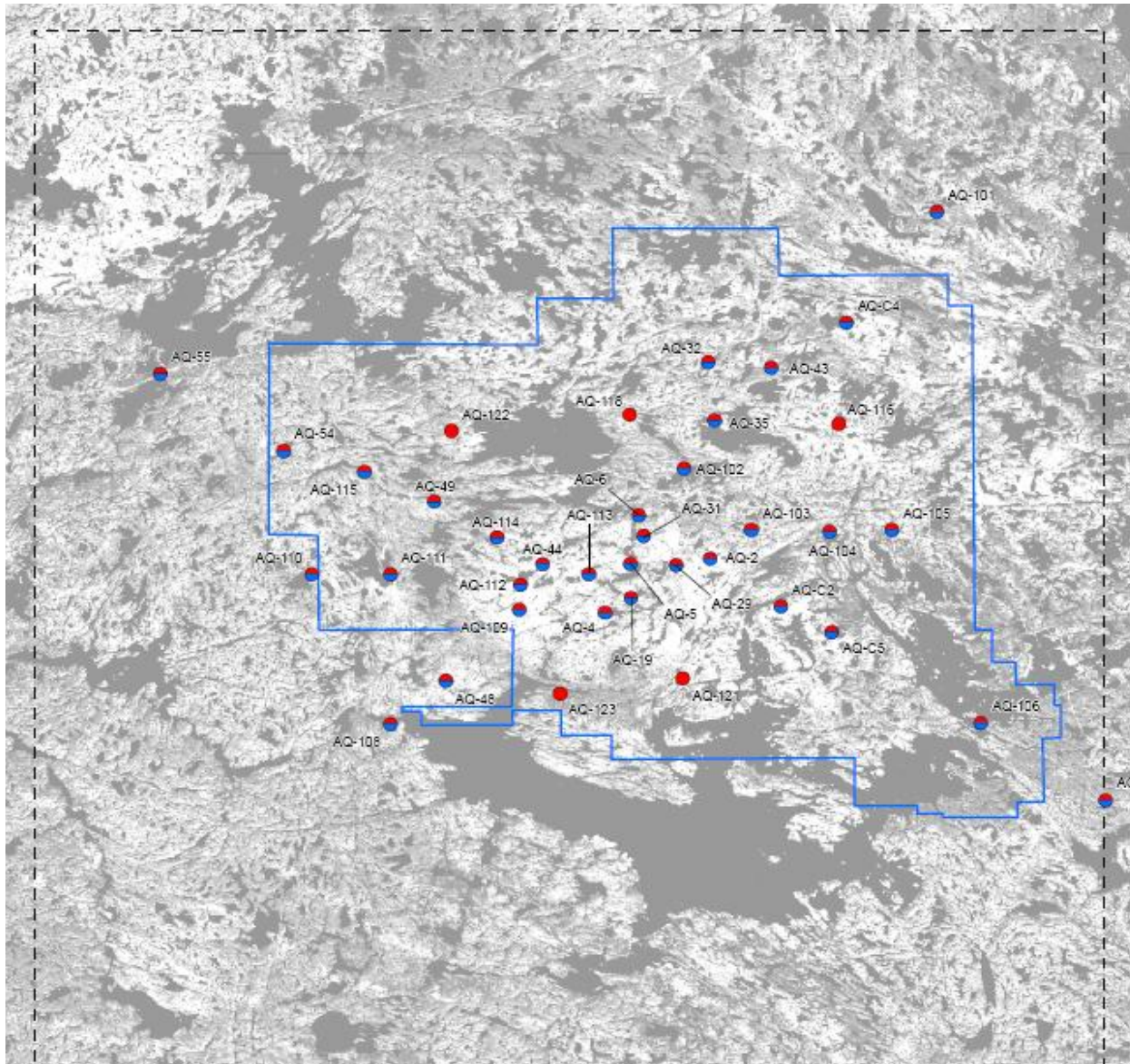
- 2007 & 2008 Dustfall Monitoring Station
- 2007 Dustfall Monitoring Station
- 2008 Dustfall Monitoring Station
- Former Continuous Air Quality Monitoring Station
- Current Continuous Air Quality Monitoring Station
- High Volume Air Sampler Location
- Meteorological Station
- Existing Road



Projection: UTM 12, NAD83



Air Quality Monitoring at Ekati



Air Quality Monitoring at Ekati

- BHPB revised its 2008 Air Quality Monitoring Program Report and committed to further improvements for the 2011 program (snow sampling method standardized)
- Agency, GNWT and EC are pleased with recent progress
- BHPB should consult with Aboriginal communities about changes to the Air Quality Monitoring Program
- BHPB should look into linkages among the different monitoring programs
 - ambient air quality and dust monitoring to the potential effects on lichen and caribou
- BHPB has started to operate the new incinerator, revised plan for waste management needed

Planning for Reclamation and Closure of Ekati

- Revised closure plan finally approved in November 2011
- Wek'eezhii Land and Water Board conducted a lengthy but detailed review of the plan that included Agency and others
- BHPB challenged jurisdiction of Board over fish and fish habitat (asked for ruling from Board and then went to court)
- Company has agreed that pit lakes should be reconnected to surrounding waters and improved for fish where possible
- First annual report on closure planning to be submitted later this year, much work remains to be done to research ways to close the mine and measure success



The Agency will continue to work to improve environmental management at Ekati



Agency site visit in June 2012